

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellants : Takehiko SHIGEFUJI et al. Confirmation No.: 1800
Appl. No : 09/680,293 Examiner: C. Goodman
Filed : October 6, 2000 Group Art Unit: 3724
For : PUNCHING TOOL PROVIDED WITH TOOL IDENTIFICATION MEDIUM
AND PUNCH PRESS PROVIDED WITH A TOOL IDENTIFICATION
MEDIUM READER

APPEAL BRIEF UNDER 37 C.F.R. §41.37

Commissioner for Patents
U.S. Patent and Trademark Office
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Randolph Building
401 Dulany Street
Alexandria, VA 22314

Sir:

This appeal is from the rejection of claims 14 and 21-22, as set forth in the Final Official Action of October 19, 2006.

A Notice of Appeal was filed on January 15, 2007 in response to the Final Official Action of October 19, 2006, and the two-month period for filing an Appeal Brief was set to expire on March 15, 2006. The requisite fee for filing an Appeal Brief under 37 C.F.R. §41.20(b)(2) is submitted herewith.

However, if for any reason the necessary fee is not associated with this file or the attached fee is inadequate, the Commissioner is authorized to charge the fee for the Appeal Brief and any necessary extension of time fees to Deposit Account No. 19-0089.

(1) **REAL PARTY IN INTEREST**

The real party in interest is Amada Company, Limited, as established by an assignment recorded in the U.S. Patent and Trademark Office on September 11, 2000, at Reel 011088 and Frame 0603, in parent application No. 08/887,279, now U.S. Patent No. 6,163,734, issued on December 19, 2000.

(2) **RELATED APPEALS AND INTERFERENCES**

No related appeals and/or interferences are pending.

(3) **STATUS OF THE CLAIMS**

Claims 1-13 and 20 (Canceled)

Claims 15-19 and 23-41 (Withdrawn)

Claims 14 and 21-22, all of the claims pending in this application, stand finally rejected and are the subject of this appeal. Appellants Appeal the final rejection of claims 14 and 21-22. A copy of claims 14 and 21-22 is attached as an Appendix to this brief.

(4) **STATUS OF THE AMENDMENTS**

No amendments to the claims were filed under 37 C.F.R. § 1.116 after the final rejection of the claims of October 19, 2006.

(5) **SUMMARY OF THE CLAIMED SUBJECT MATTER**

Initially, Appellants note that the following descriptions are made with respect to the independent claims and include references to particular parts of the specification. As such, the following are merely exemplary and are not a surrender of other aspects of the present invention that are also enabled by the present specification as well as those that are directed to equivalent structures

or methods.

Independent claim 14 recites a method of preparing a program for a punch press, wherein said punch press is provided with a punch supporting member that supports a plurality of punches, a die supporting member that supports a plurality of dies corresponding to said punches and a tool storage device that stores the plurality of punches and the plurality of dies; and identification media to identify each tool are attached respectively on each of said punches and each of said dies; said punch press is provided with a punch identification medium reader that reads out a punch identification information from a punch identification medium attached to said punch and a die identification medium reader that reads out a die identification information from a die identification medium attached to said die; wherein said program preparing method prepares said program by feeding a punch identification information and a die identification information from said respective identification medium readers back to an automatic programming apparatus and by allotting a punch existing on said punch supporting member and a die existing on said die supporting member to a workplace region to be processed such that a total number of replacements of punches in said punch supporting member and dies in said die supporting member is minimized, said program preparing method comprising: identifying punches mounted on the punch support member and dies mounted on the die support member; generating an NC program for the punch press by selecting a punch mounted on the punch support member and a die mounted on the die support member; identifying a punch and a die stored in the tool storage device and selected in generating the NC program; and generating a program for replacement of the punch and die mounted on the support members with the punch

and die stored in the tool storage device and selected in generating the NC program, wherein the NC program is generated by selecting a maximum number of tools currently mounted.

In this regard, exemplary embodiments of the present specification are shown in FIGS. 10, 16 and 21 and disclosed at page 10, line 11 to page 33, line 28. The exemplary embodiments disclose a method of preparing a program for a punch press (52), wherein the punch press (52) is provided with a punch supporting member (22) that supports a plurality of punches (26), a die supporting member (24) that supports a plurality of dies (28) corresponding to the punches (26) and a tool storage device (56) that stores the plurality of punches (26) and the plurality of dies (28); and identification media (34, 36) to identify each tool (26, 28) are attached respectively on each of the punches (26) and each of the dies (28); the punch press (52) is provided with a punch identification medium reader (38) that reads (S1) out a punch identification information from a punch identification medium (34) attached to the punch (26) and a die identification medium reader (40) that reads (S1) out a die identification information from a die identification medium (36) attached to the die (28); wherein the program preparing method prepares the program by feeding (S1) a punch identification information and a die identification information from the respective identification medium readers (38, 40) back to an automatic programming apparatus (60) and by allotting (S4) a punch (26) existing on the punch supporting member (22) and a die (28) existing on the die supporting member (24) to a workplace region to be processed such that a total number of replacements of punches (26) in the punch supporting member (22) and dies (28) in the die supporting member (24) is minimized (p. 21, lines 17-23; p. 24, lines 2-4; p.32, lines 4-6), the program preparing method comprising: identifying (S1, S2, S3) punches (26) mounted on the punch support member (22) and dies (28) mounted on the die support member

(24); generating (S4) an NC program for the punch press (52) by selecting a punch (26) mounted on the punch support member (22) and a die (28) mounted on the die support member (24); identifying (S5, S6) a punch (26) and a die (28) stored in the tool storage device (56) and selected in generating the NC program; and generating (S7, S8, S9) a program for replacement of the punch (26) and die (28) mounted on the support members (22, 24) with the punch (26) and die (28) stored in the tool storage device (56) and selected in generating the NC program, wherein the NC program is generated by selecting a maximum number of tools (26, 28) currently mounted (p. 21, lines 17-23, p. 24, lines 2-4, p. 32, lines 4-6).

(6) **GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

(A) The Rejection of Claims 14 and 21-22 under 35 U.S.C. §112, second paragraph, as being indefinite.

(B) The Rejection of Claims 14 and 21-22 under 35 U.S.C. §103(a) over ANJO (U.S. Patent No. 5,046,014) in view of KAMADA (U.S. Patent No. 5,595,560) and WATANABE (U.S. Patent No. 5,297,022).

(7) **ARGUMENT**

(A) The Decision to Reject Claims 14 and 21-22 under 35 U.S.C. §112, second paragraph, is Improper, and the Decision to Reject Claims 14 and 21-22 on this Ground Should be Reversed.

The Final Official Action asserts that the “wherein” clause of claim 14 is vague and indefinite, and that ‘it is not clear how a “maximum” number of tools ties in with the previously recited steps, i.e., what relevancy is there to the maximum number of tools and how is this maximum

number of tools determined?’

The noted recitation in claim 14 interrelates with features previously recited in the preamble and body of claim 14. In this regard, the noted recitation of claim 14 is a corollary to the recitation in the preamble of claim 14 that “a total number of replacements of punches in said punch supporting member and dies in said die supporting member is minimized”. Further, the ability to select “a maximum number of tools currently mounted” results from the recitations in the body of claim 14 of “identifying punches mounted on the punch support member and dies mounted on the die support member” and “identifying a punch and a die stored in the tool storage device and selected in generating the NC program”. Accordingly, identification of which punches and dies are currently mounted and which punches and dies are currently stored enables generation of an NC program by selecting a maximum number of tools currently mounted. Therefore, the noted recitation in claim 14 clearly interrelates with the remaining recitations of claim 14.

Further, selecting a maximum number of tools currently mounted provides a tangible benefit in generating an NC program. Finally, while there is no legal basis for requiring recitation of how a “maximum number of tools” would be determined, as apparently requested in the Final Official Action, as explained above, identification of which punches and dies are currently mounted and which punches and dies are currently stored enables generation of an NC program by selecting a maximum number of tools currently mounted.

Accordingly the noted “wherein” clause of claim 14 interrelates with the remaining features recited in claim 14, and there is no proper basis for the assertions in the Final Official Action that the features of the “wherein” clause are vague and/or indefinite. Therefore, the noted

features recited in claim 14 are definite under 35 U.S.C. §112, second paragraph, and the decision to reject claims 14 and 21-22 on this ground is improper, and reversal of this decision is respectfully requested.

(B) The Decision to Reject Claims 14 and 21-22 under 35 U.S.C. §103(a) over ANJO in view of KAMADA and WATANABE is Improper, and the Decision to Reject Claims 14 and 21-22 on this Ground Should be Reversed.

There is no proper motivation to modify ANJO with the extensive modifications required to obtain the combination of features recited in claim 14. In this regard, ANJO does not disclose the positively-recited features of “identifying punches mounted on the punch support member and dies mounted on the die support member” (emphasis added); “identifying a punch and a die stored in the tool storage device and selected in generating the NC program” (emphasis added); “generating a program for replacement of the punch and die mounted on the support members with the punch and die stored in the tool storage device and selected in generating the NC program” (emphasis added), or “wherein the NC program is generated by selecting a maximum number of tools currently mounted” (emphasis added). Accordingly, for the rejection of claim 14 to be proper under 35 U.S.C. §103(a), factual evidence of the presence in the prior art of each of the above-noted features recited in claim 14 and proper motivation to modify ANJO to include each of the above-noted features recited in claim 14 would be necessary. However, there is at least no such proper motivation to modify ANJO to include all of the above-noted features.

ANJO is directed to enhancing the ability of an operator to verify which dies are mounted on a turret punch press when preparing and confirming a numerical control (NC) table for controlling a

turret punch press (see col. 1, “Background of the Invention” and “Summary of the Invention”). In the embodiment shown in FIGs. 1-7 of ANJO, a single tool-recognizing device 39 recognizes punches 17 (also referred to as “upper dies” in ANJO) as mounted on punch-mounting portions 19 of an upper board 13 (see col. 2, lines 35-42 and col. 3, lines 10-36). That is, while ANJO uses the terms “die” and punch” interchangeably at some parts, the embodiments of ANJO disclosed with respect to FIGs. 1-6 disclose a single tool-recognizing device 39 which recognizes punches 17 mounted on punch-mounting portions 19 of an upper board 13. Accordingly, ANJO does not disclose a separate tool-recognizing device for recognizing the lower dies 21 mounted on die mounts of a lower board 15.

Further, there is no proper motivation to modify ANJO to include a separate tool-recognizing device for recognizing the lower dies 21 mounted on die mounts of a lower board 15. Rather, no motivation is found in ANJO or the prior art generally to include such a feature in ANJO. Accordingly, whereas ANJO relates to “identifying punches mounted on the punch support member” as recited in claim 14, there is no proper motivation to modify ANJO to include “identifying... dies mounted on the die support member”.

Further, there is no proper motivation to modify ANJO to include a tool storage device or to include identifying a punch and a die stored in the tool storage device and selected in generating the NC program. That is, there is no disclosure of ANJO of any tool storage, nor any reason to identify a punch and a die stored in the tool storage. Rather, according to ANJO, “the operator mounts a plurality of tools on the tool holder at random” (see col. 1, lines 56-67). Accordingly, ANJO does not acknowledge any benefit that might derive from tool storage or identification of a punch and a die stored in a tool storage. Further, insofar as the tool-recognizing device 39 is provided to verify

the position of tools mounted on the tool holder of the punch press, identification of tools not mounted on the tool holder of the punch press would not further contribute to solving the problems addressed by ANJO (see the “Background of the Invention”).

Moreover, insofar as the teachings of ANJO are directed ultimately to generating an NC program and confirming positions of tools used in implementing an NC program, there would be no benefit to later identifying a punch and a die stored in the tool storage device and selected in generating the NC program. Rather, identification of punches in ANJO involves only identifying punches 17 mounted on an upper turret 13. Accordingly, identification of punches 17 that are not mounted on the upper turret 13 would not further contribute to confirming positions of tools used in implementing the NC program, and therefore would not further contribute to solving the problems addressed by ANJO (see “Background of the Invention”).

Additionally, there is no proper motivation to modify ANJO to include generating a program for replacement of the punch and die mounted on the support members with the punch and die stored in the tool storage device and selected in generating the NC program. That is, ANJO emphasizes repeatedly that a benefit therein is providing an ability for an operator to mount tools at random (see col. 1, lines 56-57 and col. 5, lines 42-44), which teaches away from generating a program for replacement of punches and dies mounted on the support members, if such replacement was necessary in the first place. Accordingly, generating a program for replacement of the punches and dies would not further contribute to solving the problems addressed by ANJO (see “Background of the Invention”), and would in fact render moot the benefit emphasized in ANJO of enabling an operator to randomly mount tools (i.e., at least without regard to the position of the tools on the turret).

Finally, there is no proper motivation to modify ANJO such that an NC program is generated by selecting a maximum number of tools currently mounted. Rather, ANJO is directed to confirming an NC table for an NC program by confirming the position of punches once mounted. However, ANJO does not teach changing tools while implementing an NC program. Accordingly, ANJO does not disclose any such operational consideration that would go into generating an NC program, and modification of ANJO to include the features of the “wherein” clause of claim 14 would detract from the ability emphasized in ANJO for an operator to mount tools randomly.

Additionally, there is no proper motivation in any other document of record to modify ANJO to include the above-noted features. In this regard, ANJO and KAMADA are each directed to tool identification and reading for the purposes of tracking and locating dies and/or punches quickly. However, neither ANJO or KAMADA is directed to minimizing tool replacement, and modification of ANJO to include such a feature would detract from the emphasized benefit in ANJO of allowing an operator to randomly mount punches. Further, WATANABE is not directed to tool identification. Rather, while WATANABE is applied for the isolated teaching that an operator may wish to minimize tool replacement, such minimization is not coordinated with features of identifying tools on tool supports or in tool storage, and therefore would not be used in generating a program for tool replacement. Accordingly, there is no proper motivation in any cited reference to combine features of punch and die identification with features of minimizing punch and die replacement and selecting a maximum number of tools currently mounted.

Further, minimizing the number of tool replacements is not inherent in ANJO. Rather, as described in the specification of the present application, numerous considerations might be used in generating an NC program. Such considerations might be used alone when a particular benefit

is deemed be of sole importance, or several considerations may be weighed together in generating an NC program. However, it is not inherent that any particular consideration be used in generating an NC program.

In any case, the minimizing of replacement of punches and dies and maximizing use of tools currently mounted are not necessarily features of ANJO, as would be required for such features to be inherently disclosed. In this regard, the Final Official Action contradicts the assertion that the minimizing is inherent in ANJO, by later asserting that it would be obvious to modify ANJO with the teachings of WATANABE to possess such a feature (i.e., such that ANJO would require modification to possess such a feature). Further, at page 5, the Final Official Action mischaracterizes Appellants' detailed description as somehow indicating that tool replacements are necessarily minimized in generating an NC program by allowing selection of tools mounted on a turret. This is, of course, not true as is evident in ANJO where punches are identified only after (random) placement on a turret and only to finalize an NC program by confirming placement of the punches. Accordingly, ANJO does not inherently disclose or suggest the above-noted feature recited in claim 14.

Thus, even assuming, arguendo, that the teachings of ANJO, KAMADA and Watanabe can be properly combined, the asserted combination of the references would not result in the invention as recited in claim 14.

(2) Claims 21-22

Claims 21-22 are also allowable, at least for the reason that these claims depend from an allowable claim 14, respectively, and because these claims recite additional features that further

define the invention recited in claim 14. Further, claims 21-22 are separately patentable over ANJO in view of KAMADA and WATANABE which fails to disclose, in the claimed combination, inter alia,

(i) the method of preparing a program for a punch press of claim 14, wherein said program preparing method further maximizes an efficiency (claim 21); and

(ii) the method of preparing a program for a punch press of claim 21, wherein the maximized efficiency of the program preparing method is determined by minimizing the total number of punch replacements and die replacements offset by maximizing a measure of the flatness of the finished surface (claim 22).

In this regard, it is noted that the rejection of claim 22 is not detailed in the Final Official Action, and it is not clear which teachings of any document applied in the Final Official Action are believed to disclose (expressly or inherently), suggest or render obvious the above-noted features of claim 22.

Further, the rejection of claim 21 is based on the cursory assertion, at page 5, that minimizing and efficiency parameters are “obvious” parameters which one of ordinary skill in the art takes into consideration when operating a punch press. However, as explained above, none of the features of the claims relating to minimizing or maximizing are disclosed in any of the three references applied in the rejection, at least in the context of generating an NC program or generating a program for replacement of the punch and die.

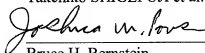
At least for each and all of the reasons set forth above, the decision to reject claims 14 and 21-22 under 35 U.S.C. §103(a) over ANJO in view of KAMADA and WATANABE is improper, and reversal of the decision is respectfully requested.

(8) **CONCLUSION**

Each and every pending claim of the present application meets the requirements for patentability under 35 U.S.C. §112, second paragraph, and 35 U.S.C. §103(a), and the present application and each pending claim thereof is allowable over the prior art of record.

If there are any questions about this application, any representative of the U.S. Patent and Trademark Office is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,
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CLAIMS APPENDIX

14. A method of preparing a program for a punch press, wherein

said punch press is provided with a punch supporting member that supports a plurality of punches, a die supporting member that supports a plurality of dies corresponding to said punches and a tool storage device that stores the plurality of punches and the plurality of dies; and

identification media to identify each tool are attached respectively on each of said punches and each of said dies;

said punch press is provided with a punch identification medium reader that reads out a punch identification information from a punch identification medium attached to said punch and a die identification medium reader that reads out a die identification information from a die identification medium attached to said die;

wherein said program preparing method prepares said program by feeding a punch identification information and a die identification information from said respective identification medium readers back to an automatic programming apparatus and by allotting a punch existing on said punch supporting member and a die existing on said die supporting member to a workplace region to be processed such that a total number of replacements of punches in said punch supporting member and dies in said die supporting member is minimized,

said program preparing method comprising:

identifying punches mounted on the punch support member and dies mounted on the die support member;

generating an NC program for the punch press by selecting a punch mounted on the punch support member and a die mounted on the die support member;

identifying a punch and a die stored in the tool storage device and selected in generating the NC program; and

generating a program for replacement of the punch and die mounted on the support members with the punch and die stored in the tool storage device and selected in generating the NC program,

wherein the NC program is generated by selecting a maximum number of tools currently mounted.

21. The method of preparing a program for a punch press of claim 14, wherein said program preparing method further maximizes an efficiency.

22. The method of preparing a program for a punch press of claim 21, wherein the maximized efficiency of the program preparing method is determined by minimizing the total number of punch replacements and die replacements offset by maximizing a measure of the flatness of the finished surface.

EVIDENCE APPENDIX

None

RELATED PROCEEDING APPENDIX

None